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ORNITHOLOGICAL NOTES FOR 1901 FROM NORFOLK AND THE NORTH OF SUFFOLK.

By J. H. Gurney, F.Z.S.

The year's budget comprises several matters of interest to East Anglian ornithologists. To begin with the migrations—the chief of which were the Little Auks in February, the Bluethroats and Siskins in September, the Waxwings in November, and the Wood-Pigeons in December. The movement of the Wood-Pigeons was to the N.W., but this may have been only a local movement. I have never seen anything like their legions since the great flight in Surrey in December, 1877, but it is to be remembered that December is about the time when we in Norfolk always expect an increase. The fact is, the preservation of game has been immensely beneficial to the Wood-Pigeons, which are far too destructive to deserve any extraneous protection. We also had a good supply of Fieldfares, but Redwings and Bramblings were fewer. Mr. Patterson noticed Fieldfares searching for drowned worms at Breydon.

The chief rarities for the year 1901 are—a Lesser White-fronted Goose in January; a Golden Oriole, eight White-winged Terns, a Goshawk, and an Orange-legged Hobby in April; a White-winged Tern in May; a Woodchat in June; a Caspian Tern and two Avocets in July; some Bluethroats and a Roller in September; a Sabine's Gull and Tengmalm's Owl in October; and Allen's Gallinule in December.

The first Spoonbill was seen on Breydon mud-flats on April 12th, having come in with a strong north wind, and is believed to have frequented Breydon until the 21st, when it took its departure in fine weather; wind from S.E. (Jary). On April 26th, the wind being N.E. and fine, twelve more came, but remained only two days (Jary). They were no doubt from Hickling Broad, where the Rev. M. C. Bird, to whom I am indebted for much information, reports them as seen a few days before. On May 3rd Mr. Patterson observed another, seven more on the 7th, and two on the 16th and 17th feeding on young flounders about as big as a penny, or smaller. On the 26th he saw two, and three on the 30th; also two on June 2nd, four on June 7th, five on the 15th, and four on the 7th; and noticed that the large Gulls occasionally robbed them of their flounders. Mr. Patterson made a clever drawing, showing eight different attitudes assumed by Spoonbills, as an illustration to his 'Yarmouth Birds.'

From early April to the end of July the uncovered mud-flats of Breydon tidal broad were apparently never without from two to four Spoonbills, which were seen almost daily either by Jary the watcher, or by Mr. Patterson (*cf.* Zool. 1901, p. 269). These birds were observed with envious eyes by the fraternity of law-breaking gunners, who, however, were not allowed to destroy them. On July 23rd I had the opportunity of watching two fine birds,† but without crests, which were feeding with numerous Gulls, and only flew from one mud to another when put up. Their white colour against the sky whilst on the wing was very striking, and as with regular beats they flew round, they were recognizable at a great distance. In descending it was interesting to see the circles diminishing, until with one long sail, curving down, they resumed their position on the mud, keeping within ten or twelve feet of one another, their long necks extended sometimes for feeding, or bent back in repose, with bill inserted between the dorsal and scapular plumage. When flying the legs are fully extended, and so is the neck, which is slightly inclined upwards, as shown in Mr. Patterson's drawing.

The Spoonbills seemed to prefer the town-end of Breydon Broad, in spite of the noise of a railway-station and the hammering on a new bridge. It may be owing to the silting up of the

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broad. The mud-flats on this part of Breydon water remain longest uncovered. On July 30th I found them at their old quarters, with many Black-backed and Black-headed Gulls, a Whimbrel or two, and a pair of handsome Sheld-Ducks. The Spoonbills were probably feeding on mud shrimps and worms; but a Heron which was near them caught a flounder. There was also an Avocet at the farther end of the Broad, where I did not go, the scene reminding me of days on the Nile, where a hundred Spoonbills may be seen in a flock, and Avocets also.

In the middle of July, as I learned from Mr. Pashley, there were a couple at Cley for a week or two, and another at the beginning of August, very likely the same which had been at Breydon; and it is satisfactory to know that the law was observed, and they were unmolested. There is really no more remarkable instance of what can be done by protection than the annual return of the Spoonbills in such considerable numbers to their ancient Norfolk haunts; but unless the Breydon Wild Birds' Protection Society receives more pecuniary support than it has had in the past, it will be unable to continue carrying on its good work. There is still a place in Holland fortunately strictly protected, where about six hundred Spoonbills nest in security (Sclater, Bull. B. O. C. viii. p. 10), from whence some think our stock come; but Mr. Patterson is informed that a new railway runs near their "spoonery," which is ominous.

The annexed copy (p. 84) of a photograph by Mr. G. C. Davies, represents a heronry at Reedham, supposed to be on the same site as the wood in which the Spoonbills nested in Sir Thomas Browne's time. It is just on the rising ground above where the marshes commence, and I learn from the owner that there were nearly ninety nests this summer. No doubt, when Spoonbills nested there, their food supply was drawn from Breydon flats.

The fifteen Great Bustards which were imported from Spain, and turned down, feather-pinioned, near Thetford (see last year's Notes), as I learn from Mr. Hill, who has obliged me with reports from time to time, remained on the same estate until the middle of June, when, their wing-feathers being grown, all but four or five took their departure, and two were almost immediately shot at Finningham, in Suffolk. Both the slayer and his master were prosecuted, but this could not bring the Bustards to life

again. In October last the head keeper was still able to say that there were two males and two females left. These four were well guarded, but on Dec. 13th they had strayed as far as Mildenhall, near Newmarket (Howlett). However, on the 17th, they were safely back at their proper quarters, three of them flying strongly; but the fourth, a female, has an injured wing.

It has been the worst Woodcock and Snipe season I remember for a long time. The "Red Partridge" (*Perdix montana*) did not turn up again, and its grey brethren were not particularly abundant. To the domestic Pheasant all seasons are more or less alike.

As usual, the Notes are arranged in the form of a diary. Occurrences marked with a dagger indicate that such specimens were examined by the recorder.

Heronry at Reedham.

January.

1st.—A Tawny Owl, quietly sitting on my retriever's kennel, was found early in the morning by the keeper going his rounds. It was caught without much difficulty, and on examination proved to have a disease, or rather a growth of flesh in the mouth, which

was no doubt the reason of its seeming tameness, and from which it soon died. Diseases among Wood-Pigeons are rather common, but I never heard before of such a case in a wild Owl.

4th.—A gathering of Long-eared Owls at Calthorpe, near the sea; also a Harrier and twelve Bearded Tits (R. Gurney). Twenty-five Whooper Swans at Hickling (A. Nudd).

5th.—Bittern booming (M. C. Bird).

7th.—A Dunlin† at Keswick.

8th.—Two Bewick's Swans at Yarmouth (B. Dye), and six at Hickling (Bird).

19th.—Bean-Goose at Yarmouth (Dye).

24th.—A Lesser White-fronted Goose (*Anser erythropus*, L.),† female, obtained in the Wash, and sent from King's Lynn, with some Coots and Knots, to a poulterer at Birmingham, was there detected by Mr. Coburn (Zool. 1900, p. 317), who secured it. Although a large specimen (measuring—culmen 1·5 in., tarsus 2·4 in., length 22 in.), there seems no doubt that Mr. Coburn has correctly identified it. He remarks that its legs were not yellow, but they would naturally change after death to a reddish orange, which is what Mr. Coburn describes them to have been. In this example, which, through the kindness of Mr. Coburn, was exhibited at a meeting of the Norwich Naturalists' Society, the white forehead extends nearly up to a point between the eyes, which is generally considered a distinctive mark of *A. erythropus*. Some ornithologists would unite *A. erythropus* and *A. albifrons*, but in that case the American *A. gambeli* cannot be kept apart, and there is an immense difference in size between the two extremes; and, as the habitats of *A. erythropus* and *A. albifrons* are to some extent different, although both inhabit Central Europe and some part of Asia, it seems undesirable to unite them. Seebohm has done so, but they are kept apart by Count Salvadori, our latest authority. It is possible that a White-fronted Goose shot on Breydon in January, 1880, and described by Mr. Stevenson as somewhat small, may have been *A. erythropus*, a bird, as Mr. Coburn's specimen shows, easy to pass over.

February.

7th.—An unfortunate Bittern shot in the suburbs of Norwich, close to the City Road Station, where there is a small expanse of water (T. E. Gunn).

13th.—Mr. Gunn showed me a Slavonian Grebe,† and a few days afterwards I saw another, which had, in addition to a bright red eye, a beautiful inner rim of yellow next the pupil.

15th.—A Bewick's Swan† shot at Holt.

19th.—Disturbed a Wood-Pigeon from her nest in a fir-tree, in which were two eggs, in spite of snow being on the ground. This is a most erratic species as to nesting, and I certainly think Wood-Pigeons sometimes have four or five nests in a year. These are often such flimsy fabrics that it is a wonder how they hold together, and sometimes the glossy-white eggs can be seen through them. *A propos* of this subject, Miss Buxton saw a Wood-Pigeon flying with an egg-shell in its beak, which it afterwards dropped. From this no doubt a young one had been recently extruded, instinct probably prompting the parent to remove the shells.

22nd.—Mr. A. Napier, who resides at Holkam, informs Mr. Southwell that there have been more wildfowl on the Earl of Leicester's lake than he ever saw before, and he believes at one time there were 20,000 Ducks of sorts on the water, but only one Smew. Several Whooper Swans have also visited the lake.

25th.—At least three thousand Coots, or "Cutes," as they are locally called, on Hickling Broad; and afforded an extraordinary sight when, on being fired at by a flotilla of boats, perhaps nearly one thousand would rise in the air at one time, dispersing in every direction, but seldom leaving their beloved Broad. The same system of shooting is adopted as at Slapton Ley and the mouth of the Rhone, the object being to keep a good line and hem the Coots in, which, if properly done, the birds return over the boats. The tenacity with which they cling to the Broad is owing to their being day-feeders, for at night Coots often fly long distances of their own accord. How long these organized Coot-shoots have been in existence Mr. Bird is unable to ascertain, but certainly as long as any of the present marshmen can remember.

28th.—The month of February was again notable by a very considerable incursion of Little Auks, mingled with many young Puffins (a somewhat new feature), but I only heard of one adult Puffin from Mr. Patterson. It is probable that the adult birds, being stronger than young ones, are less at the mercy of the

waves, and keep further out to sea; but the Little Auks which visit our coast always seem to be adult, or nearly so, and the sea does not spare them. Among many scores I have never yet handled one young enough to have a beak smaller than the normal size, which seems singular, as young Razorbills are not uncommon. The first reported Little Auks were met with by Mr. Ernest Gunn when walking along the shore at Caistor on the 14th. These were followed on the 20th by one at Northrepps, one at Overstrand, and others at different places, amounting altogether to over fifty, chiefly by the coast; but one was carried as far as Weasenham. There was some variation in plumage, and Mr. Dye was the first to notice that sometimes the white neck was continued round the occiput. This I imagine to be perfect winter plumage; and, on the other hand, Mr. Gunn had a specimen which had acquired a good deal of the black neck of summer. Both Mr. Gunn and Mr. Lowne, who were good enough to sex their specimens, found a considerable preponderance of females.

MARCH.

23rd.—At Scratby Gap, near Yarmouth, Mr. Patterson, searching along the shore, found several Little Auks, Guillemots, and Puffins, or their remains—the sea's rejectamenta after a gale from the east. He also discovered some dead Starlings, and at one spot eight Rooks, which had lost their lives in crossing.

25th.—More than fifty Blue Tits† in one small beech plantation. Wind from N.N.E., with sleet.

30th.—Gale from the south.

31st.—Many Grey Crows leaving Norfolk, and the following week (April 7th) hundreds were seen following the coast-line at Horsey (Bird). They always congregate on our coast about this time (*cf.* Zool. 1886, p. 390).

APRIL.

2nd.—About April 2nd a Shag,† not adult but well advanced in plumage, was caught alive, but in a helpless condition, close to Felmingham Hall, nine miles from the sea, and subsequently sent to me in a somewhat advanced condition by Mr. Plumbly.

16th.—About this date Mr. Pashley had brought in for preservation a female Goshawk—always a rare bird with us—

which had been taken at Weybourne in a rabbit-trap. Last occurrence, March, 1893.

21st.—A Golden Oriole, a Pied Flycatcher, and a Norfolk Plover—signs of summer—all recently seen or captured near Yarmouth (W. Lowne). This Norfolk Plover, or another one, was taken on a boat (Dutt).

22nd.—S.E. Terns on Breydon, including a flock of eight White-winged Terns, which were identified by Mr. Jary. Wood-Sandpiper at Hickling.

25th.—Several Wood-Sandpipers, some Little Stints, and a Jack-Snipe seen at Hickling by a competent observer (Bird).

28th.—Male Smew at Barton Broad (Bird).

30th.—Mr. Lowne received an adult male Orange-legged Hobby from Acle, and at about the same time a Common Hobby† in change, and an Eared Grebe from Stalham. It is some time since a Red-legged Hobby has been recorded from Norfolk; it was supposed to have been seen flying over Breydon a few days before it was killed.

MAY.

1st.—Wood-Warbler seen at Cranmer by Mr. C. A. Hamond, a local bird, and decidedly rare; the Chiffchaff is also scarce.

3rd.—N.E. Fourteen Egyptian Geese on Breydon Broad (Jary). As many other African birds migrate to England and France, I cannot understand why this species in England should always be supposed to represent escaped birds. Its occurrence with us is no more remarkable than the occasional presence of such birds as the Greater Spotted Cuckoo, the Desert Wheatear, the Buff-backed Heron, and the Cream-coloured Courser, all likewise natives of North Africa.

13th.—A Woodcock's nest at Stratton Strawless, where the sitting hen was so tame as to allow people to stroke her, and even touch the eggs, which, not to be wondered at, were ultimately forsaken, but not until she had been several times photographed upon them. As she was known to have sat for twenty-five days, the eggs must have been infertile (Buxton).

15th.—A White-winged Tern on Breydon Broad, also some Lesser and Black Terns (Jary); wind N.E. the previous evening, and high.

16th.—N.N.E. Two Green Sandpipers and a pair of Com-

mon Sandpipers at Hickling, the male of the latter mounting up into the air, and "singing" like a Redshank (Bird).

JUNE.

1st.—Twenty-four Sheld-Ducks at Cley (F. H. Barclay).

2nd.—Mr. S. Bligh observed a Woodchat at Framingham Earl fly down from a high fence and take a large insect, the size of a May-chaffer, which it was carrying in its bill when it passed him; the under parts were dull white, the back black and white, the scapular feathers looking perfectly white, as in a male, which it probably was. It is many years since a Woodchat has been identified in this county.

14th.—A Grey Crow shot at Cromer by Mr. Barclay, who discovered some game-eggs which it had evidently sucked close by. Another seen by him near the same place on Aug. 9th.

18th.—Mr. Southwell found the Terns at Wells quite as numerous a colony as usual—the result of protection—but the nests more scattered than last year. The dead bodies of a few young ones, however, were lying about, and some eggs had been drawn into a hole by rats. Two nests each contained the unusual number of four eggs, and in a third nest was a white egg with two normal ones, of which Mr. Corder obtained a good photograph.

29th.—Disturbed a Hawfinch† at my pea-rows, and was astonished at the harm it had done; but I believe that the Jays are also answerable.

30th.—A young Hawfinch† caught in a strawberry-net at Cranmer (Davey). This bird was reared, but, being put into the same cage as an old male, was so pecked that it died.

Cuckoo Notes.—On June 17th a young Cuckoo, perhaps four days old, and quite unable to see, and with the back cavity still visible, was found in a Hedge-Sparrow's nest at Keswick. One Hedge-Sparrow's egg still in the nest, and two naked nestlings dead on the edge of it. A few days afterwards another young Cuckoo was found about fifty yards from the first one, and that was also in a Hedge-Sparrow's nest, and between the two Cuckoos there might be a week's difference in age. Cuckoo No. 1, being put in a cage, had of course to be reared by hand, which was a laborious business, it being nearly six weeks old before it knew

how to feed itself. From the first it seemed incapable of seeing any food presented to it; even a wriggling mealworm was not noticed, and it was evident that it fed by a sense of touch only, a habit which afterwards led to its death; for, being neglected, it refused to eat, although plenty of food was before it. Even when full-grown it seemed unable to find its food. Another peculiarity was that it always rose to eat, and without getting on its legs would neither accept nor eat anything. It then struck out at the hand which held the food, in the aimless way of young Cuckoos, at the same time generally uttering a low trill, which I particularly remarked, as some writers describe a young Cuckoo as quite silent. A correspondent describes a young Cuckoo as crushing caterpillars before eating them (Zool. 1896, p. 384), but mine did not treat mealworms in this manner, but swallowed them at once. At first the sunken eyes of this young Cuckoo were very noticeable, but by the time it was half-grown they were as prominent as in most other birds. The yellow mouth—at first so bright—also soon changed to a dull pink, and the beak became nearly black. When in the nest the position of the head is more bent back than in other nestling birds, and the eye, as I have said, more sunken. Good authorities have denied that the parent Cuckoo takes any subsequent interest in its offspring, but at the age of about thirty days my captive was visited by an adult Cuckoo, which was seen to flutter about the cage without actually alighting upon it. I did not myself see it, but the keeper's boy could not be mistaken.

On July 28th a third young Cuckoo was found, also in a Hedge-Sparrow's nest, all three being discovered by the noise made by the old foster-bird in feeding them. It was about four days old, and was within twenty yards of the second nest, all of them being placed in hedges in one garden. These youngsters were of a black tone of plumage. and must have been the offspring of the same female, judging from this and the remarkable proximity of the nests.

I may here mention that two Cuckoos did good service in the early part of May by repeatedly feeding (in the presence of my gardener) at Northrepps on a small caterpillar (*Cidaria prunata*) which infested the gooseberries. On the other hand, some gooseberry-bushes at Keswick, which did not receive their atten-

tions in this way, were spoilt possibly by the same larvæ. Very few birds except the Cuckoo will eat the "woolly bear."

JULY.

4th.—A considerable number of Great Crested Grebes seen on Ormesby Broad by the members of the Yarmouth Naturalists' Society, who are anxious to have them protected. Ormesby and Filby Broads were always a favourite haunt for Grebes, and I have seen a great many sometimes on Fritton lake.

21st.—A Caspian Tern, watched by Messrs. Patterson, Eldred, and Jary, fishing and plunging vigorously into the shallow water on a part of Breydon called "Rotten-Eye." The next day it was watched again, and was seen to capture an eel, after which, thanks to protection, it passed on. The wind at the time was W.N.W., light, with some fog, and the day before E.N.E., and the evening before that E. It is on this great tidal Broad that most of the British captures of *Sterna caspia* have taken place, but we have not had one to record since 1862.

29th.—E., fine. Two Green Sandpipers at Intwood stream (*cf.* Zool. 1899, p. 122); at Hanworth also from two to five have been repeatedly seen during the summer, but as yet no Norfolk naturalist has succeeded in finding a nest.

30th.—S.E., fine. An Avocet on Breydon Broad (Jary).

AUGUST.

4th.—My keeper lifted a Partridge off her nest, and, after testing the five eggs to see if they were fertile, put the bird gently back, without her resenting being handled, and the eggs afterwards hatched. Perhaps the Partridge was a hand-reared one, which would in part account for its tameness. I also had a nest in a stack, but, fearing accidents, hatched the eggs under a hen. Partridges are apt to be tiresome on a newly-sown bean-field, for not only do they attack the seed in May, but also eat the young plant when it is about an inch above the ground.

9th.—W. The Avocet still on Breydon muds, with Curlew, Whimbrel, Redshanks, Knot, Dunlin, and Ring-Dotterel (Jary).

12th.—About this date two Garganey Teal were shot near St. Bennet's Abbey, as well as a Shoveler and a Common Teal;

while a Purple Heron was reported as having been seen at Yarmouth; doubtful!

18th.—S. The Avocet still on Breydon.

September.

The first fortnight of September was marked by a considerable passage of Blue-throated Warblers, extending from Wells to Horsey, where Mr. Bird notes one on the 12th. This was immediately followed by a movement of Siskins and Redstarts, Mr. Bird remarking that he never remembered seeing so many of the latter: and I see from 'The Zoologist' (1901, pp. 425, 426) that the excess of Siskins was not confined to Norfolk. In Scotland the late Rev. H. A. Macpherson saw an immense flock of them ('Scottish Nat. Hist.' p. 53), and the migration reached Orkney Islands. It would be interesting to know if Heligoland shared in this migration, as it did in October, 1881. Mr. B. Dye writes that many Siskins were caught at Yarmouth, and the following is from Mr. Patterson:—"During the influx of Siskins, Mr. Odder, a local birdcatcher, observed an old lettuce-bed smothered with them. Borrowing a call-bird, he took his nets there next morning, and by breakfast-time had netted 90, and by noon had 140."

On the 2nd Mr. Roberts received a Roller† to preserve, but the carrier who brought it to Norwich declined to say where it was shot; and later on the same secrecy was maintained about a Fork-tailed Petrel.† Happily the blood of only a single Hoopoe has stained the ground this year; this bird has become nearly as rare in Norfolk as the Rose Pastor, which thirty years ago was not a very exceptional visitor.

12th.—A Solitary Snipe shot on Blakeney sand-hills by Mr. T. E. Gunn. I do not know if there is any significance in the fact that I saw some in Copenhagen on the same day at a poulterer's.

25th.—A grey Cuckoo seen at Potter Heigham by Mr. Bird, who was within twenty yards of it; very late for an adult.

30th.—About this date a Honey Buzzard† was shot at Southrepps (Gunn), and another,† attempting to alight on the lee-rigging of a smack, fell back into the sea, and was captured alive. On being brought into Yarmouth, it was immediately announced

in the local paper as an Imperial Eagle! Neither in this nor last year has there been more than a single Rough-legged Buzzard to report, which is curious, as they are sometimes common.

The last three weeks of September were much too fine for bird-migration, and quite hot for the time of year. October 1st gave 75·5° at a shaded thermometer of Mr. Preston's, a nearly unprecedented reading; but on the 2nd the weather changed, but only to be fine again on the 3rd. In consequence, ploughing for the autumn wheat-sowing, very backward (owing to want of rain); and in such weather no rarities were to be expected in the bird line. On Oct. 13th Mr. Bird gathered twenty-four species of wild flowers in bloom.

October.

5th.—Eleven Norfolk Plovers† at Hevingham, where I learned from the owner of the land that a pair had bred this summer; he caught a young one. This considerable tract of heath is now the only resort of *Œdicnemus scolopax* in East Norfolk since Kelling Heath was deserted.

10th.—An adult Buffon's Skua,† shot at Beeston Regis by Mr. Hoare while flying over a turnip-field just after a gale there from the N.W., in which a ship was wrecked.

14th.—Grey Crows and Jackdaws streaming over (Bird). Little or no wind at Keswick.

19th.—Mr. Cole gave me an opportunity of examining an immature Sabine's Gull,† shot at Lowestoft yesterday, which makes the ninth local occurrence in this same month. It was in good condition, and weighed 7¼ oz., and was in the usual plumage. Wind on the 18th S., force 5; misty at Yarmouth.

27th.—About this time a considerable influx of migratory Larks, Finches, Martins, &c., noticed by correspondents.

30th.—Two Tengmalm's Owls picked up alive at Southwold, in Suffolk ('Field,' Feb. 1st, 1902), and another at Thornham (Archdale).

31st.—A Grey Shrike,† of the variety called Pallas's Shrike, brought into Yarmouth by a fishing-smack. Mr. Dutt writes that other trawlers have been visited by migrants; a Starling alighted on one, followed by a Sparrow-Hawk, which was killed by the fisherman with his boot. Mr. Dutt found a Partridge

washed up, but this may have been one frightened out to sea. High wind from the E.N.E. on the 30th, and gale on the 31st.

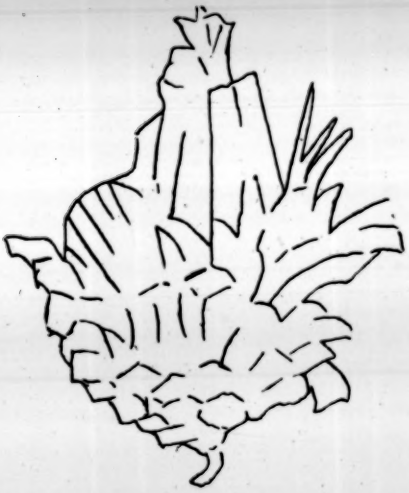
NOVEMBER.

1st.—Greater Spotted Woodpecker at Yarmouth (E. Saunders), after a gale from E. There is no European Woodpecker so migratory as *Picus major*. Others afterwards in the same neighbourhood, and two sent to Mr. Cole, of Norwich, and one to Mr. Gunn.

2nd.—Quail shot at Palling, by the coast, and another on the 15th, had their crops full of seed, chiefly of wild goosefoot (*Chenopodium album*), (Bird).

11th.—*Woodpecker Notes.*—A Great Spotted Woodpecker† (*Picus major*) has lately, day after day, and generally in the morning, been seen upon the withered brauch of a large stone-pine (*Pinus pinea*)—always the same branch—hammering at it with might and main. This hard labour has now been going on regularly for a fortnight. Sometimes it hammers at the dead bough, and sometimes at fir-cones placed on the bough, which it may be seen to gather from a couple of adjacent Scotch firs (*P. sylvestris*); but it is always on this particular bough, which has some mysterious attraction. Having placed the cone in position, it begins near the apex, where the scales have not expanded, and picks as much of it to pieces as is needful in its search for the seeds, which lie between the scales, leaving the hard base untouched. It probably jams the cones into a crack, or it may be into a hole which it has made in the dead branch. Such holes are about the size of a shilling, and are not uncommon; but it never struck me before that they were intentionally made as receptacles. Occasionally this amusing bird will take a cone in its beak, look round to see that the coast is clear, and then, if the observer remains quite motionless, resume its hammering. It never sits crossways, and each hammering only lasts a few seconds, but is very resonant. Probably it extracts the seeds, which are very small, by means of its long tongue—1·5 in. in length—which is furnished with a horny and no doubt glutinous tip; but I suppose it can only get them by this means when the cone is ripe, and the scales expanded. The tongue of a Woodpecker is indeed a singular organ, curiously adapted for its purpose, and is beset at the end with little barbs. When at work on its favourite branch

its whole body swings with every blow, with such vigour are they given. The stiff rectrices, which are graduated to a point, and have hard webs, are certainly a support in this sledge-hammering process, and equally are they of use in climbing. Often it may be seen hammering when it has dropped its cone, but this is either pure ebullition of spirits, or in order to keep its beak down. Woodpeckers are occasionally seen with malformed beaks, but a dead bough is a tempting sounding-board. This bird is a female, which disposes of the supposition (Zool. 1901,



Fir-cone chipped by *Picus major*.

p. 97) that it is only the male which hammers. When first observed by my neighbour, Mr. Knight, it was in a large nut-bush in his garden, attending to a cob-nut, and it was not until this bush and the next one were pretty well cleared that it betook itself to the fir-cones. Here, under its favourite branch, the ground is now (Nov. 19th) strewn with dropped cones. Now and then, when it is not at work hammering, a "quat quat" can be heard, and this is the only vocal sound which has proceeded from our handsome visitor, and might easily pass unnoticed. Prof. Newton says they also sometimes utter a low "tra tra tra" ('British Birds,' ii. p. 471).

22nd.—Sometimes the distant tapping of another Woodpecker could be heard, but it was not until to-day that we located her; for it was again a female. She was in a large oak-tree, and here she remained several days feeding entirely on the grubs contained

in oak-galls. Once or twice she was seen flying with one in her beak, and in one instance holding a twig several inches long, which she had just picked with the oak-gall attached to it, and which she afterwards dropped at my feet. Most of the galls on the ground had been halved very neatly, and, as some which I obtained for examination contained as many as six little white grubs, they were worth the trouble of opening.

23rd.—Wood-Pigeons arriving in swarms at Taverham, where there are extensive coverts (E. F. Penn), and a large increase noted at Keswick and other places; but of this more subsequently. Between the 17th and 27th Waxwings were reported from Lowestoft, Yarmouth, Filby, Burgh Castle, Hickling, Sidestrand, Cromer, and Sheringham; but the flight must have rapidly passed on, and does not seem to have been followed by others. By the end of the month they had got to Newmarket (W. Howlett).

DECEMBER.

4th.—Only one Spotted Woodpecker at Keswick now, but that remains constant to the same two fir-trees, which it is gradually stripping. There are at the present time three or four hundred Scotch fir-cones on the ground, all dropped by the Woodpecker, and nearly all from the same dead bough. Besides this, about twenty are jammed into the trunk of the tree, which, being a stone-pine, has interstices in the bark large enough to receive them. Although the Nuthatch does the same with nuts and seeds, I never detected it in *Picus major* before. In my last year's "Norfolk Notes" a description was given of a knob as big as a pea on the lower mandible of the nestling Green Woodpecker. I have since ascertained that the Greater Spotted Woodpecker also has this peculiar growth, but less developed, and it has also been detected by Mr. H. Noble in *Gecinus sharpii;* but what its object can be is difficult to divine. *P. major* is not an uncommon bird in Norfolk, and anyone may hear its rapid hammering, which is loudest in the spring, taking the place of the vocal love-song in other birds. It is much more seldom to be seen upon the ground than the Green Woodpecker, and is more of a fruit-eater, but does not feed on ants. I once had a nest in a plum-tree in my kitchen-garden, well within reach of the hand; another nest was in an alder, and a third one in a birch,

the bark of which had many scratches on it made by the Woodpecker's claws. The eggs are glossy white; as many as seven were on one occasion taken at Hempstead, but I cannot remember now what sort of tree the hole was in. I believe this species to be very omnivorous, and have even once known an instance of its eating young birds, as well as the larva of the Leopard Moth.

8th.—*Great Flight of Pigeons.*—For several days past large arrivals of Wood-Pigeons have been noticed, probably from Scotland, where I am told there have been great numbers. They are destructive birds, and have this summer completely cleared a garden at Northrepps of peas. Generally they prefer turnips and acorns, and have no objection to acorns which have begun to sprout. Their crops are very dilatable, and they can easily stow away thirty or forty large acorns, or five hundred black ivy berries without inconvenience, or two or three wine-glasses of oats or elder berries. In fact, there is nothing they will not eat—roots, green crops, cereals, from the time they are sown to the time they are harvested, are at their mercy. With such qualities, this increasing species should be kept in check wherever practicable.

11th.—From about 7.30 a.m., or earlier, to 8.45 a.m., Wood-Pigeons at the rate of forty per minute were passing my house, most of them in flocks of from twenty to forty, flying at an average height of about two hundred feet, and all going N.W., against the wind, which was light. I never saw so many here before, and think the whole country-side must have furnished contingents. It had been fine, but at 11 a.m. it began to rain, and poured all day without ceasing, and by 9 o'clock next morning there was 1·55 in the rain-gauge. This was the biggest downpour of the year, and to it no doubt the movement of Pigeons was due.

12th.—Again, at the same time in the morning, flocks of Pigeons were to be seen going N.W., but the total was very much less than yesterday. Shooters were not slow in availing themselves of so many "Cushat doos," and at Weston, Witchingham, and Morston bags of nearly one hundred were made in a few hours. It was to this line of country that they seemed to be confined, correspondents at Cromer, where there are large woods, reporting only a few, while Mr. Penn, who was shooting

near Lowestoft on the 10th, 11th, and 12th, was struck by their scarceness.

19th.—My nephew saw a Peregrine Falcon at Cley.

29th.—Another great arrival of Wood-Pigeons having taken place at Taverham, Mr. E. F. Penn went to the coverts by the river at 11.45 the following morning, and in about three hours bagged one hundred and twenty-nine to his own gun; but going again with his father the day after, expecting great things, they hardly saw any. He says at one time in some coverts at Attlebridge near there, where there are a lot of big dark fir trees, it was quite a wonderful sight when the Wood-Pigeons went in to roost, "just like Starlings in a reed-bed," and they seemed to be packed as tight as was possible. Bags of twenty-seven, thirty-eight, forty, and fifty-four were made up on ordinary days covert shooting, when no special pains were taken to circumvent them. I believe there were very few Stock-Doves; I did not see any. For lying-up for Wood-Pigeons a few "decoys" are a great help, but they must be head to wind, and there is a good deal of judgment required in placing them. Above all, it is essential that the shooter be himself well concealed.

31st.—On the last day of December,* a Gallinule† of a cinnamon colour, and about the size of a Moor-hen, alighted on a fishing-boat off Hopton, a village near Yarmouth, and being caught was taken to Mr. Walter Lowne. With the assistance of books and skins, kindly lent by Prof. Newton, it was decided that the stranger was an immature Allen's Gallinule (*Porphyriola alleni* (Thompson)), resembling the hind figure in the plate in Dresser's 'Birds of Europe,' a native of Africa which has occasionally occurred in the south of Europe, and has also been taken at sea. Two days afterwards it was still alive at Mr. Lowne's house, showing no signs of confinement, except in being tame, which Porphyrios generally are; and as there was a high wind from S.W. at the time of its capture, I think we may look upon it as a wanderer strayed from the south. I know that the time of the year is somewhat against this theory, but Prof.

* I learn from Mr. J. B. Nichols that the Allen's Gallinule was not captured on Dec. 31st, but on the morning of Jan. 1st, when the wind was again W. S. W., but had moderated a little, and the weather was rather misty at Yarmouth.

Giglioli, of Florence, writes that *P. alleni* has been taken both in Italy and Sicily in December; see also Giglioli, 'Avifauna Italica,' pp. 353, 354. It is also true, as Prof. Newton remarks, that few species escape from a cage more readily than those of this genus, because they look bulky, while in reality they can squeeze through a very small opening. Enquiries ascertained that it was not a fugitive from Woburn Park, where a number of *P. smaragdonotus* were turned out in 1896 and 1897. All Crakes and Gallinules are wanderers, because they fly high and are probably easily carried away by storms, and it is easier to explain the appearance of *Porzana maruetta* in Berkshire and the Hebrides, of *Porphyriola martinica* in Ireland, of *Aramides cayennensis* in Wiltshire, and of *P. alleni* at Yarmouth by the theory of their being storm-driven migrants assisted by ships, than by the alternative theory of escape. There are scores of authentic records of Water-Rails, Corn-Crakes, Gallinules, and Porphyrios being caught on ships. On the same day a large Diver†, thought at first to be Adam's Diver, was picked up on the shore at Caister, and taken to Mr. E. C. Saunders; but although nearly the whole of the lower mandible and about two-thirds of the upper were white, the bill was not sufficiently upturned for that species, judging from Prof. Collett's plate and article and from my father's Pakefield specimen. Neither can I at all think that the specimen figured in Babington's 'Birds of Suffolk' is really *Colymbus adamsi*, though he thought it was. Our museum contains a good example from the north of Norway, obtained at Tromsoe by Col. Feilden, which shows clearly the difference in the bill.

Avicultural Notes.

Eagle Owl.—On February 1st one of my late father's Eagle Owls died; it was believed to be between thirty and forty years of age, and a few weeks after its companion, thirty years old, also died. My father had many of these fine Owls, but he never equalled the success of Mr. Meade Waldo, who has two in Kent, one of which—the male bird—is undoubtedly seventy-one, and the other—the female—is believed to be fifty-six, and is the parent of ninety young ones. Compared to such Nestors our birds were juvenile. There is no easier bird to keep than this

hardy Owl, but if two males are together they will fight, and probably claw out an eye. It is evident that the Eagle Owl can see but very imperfectly in the daytime. The iris is very yellow in the young bird, but gets much lighter after eighteen months. In few birds do the pupils dilate more, and in the sitting bird, when exhausted with the labours of incubation, they become almost white. The eyes get weak if they sit long in the sun; and if one eye is exposed to the light, and one is in the shade, one pupil is then much larger than the other. The ear-tufts are depressed in repose, but if a dog or a stranger appears they are immediately erected, and the whole bird swells itself out in a very formidable way, snapping its mandibles with a loud noise, which is done in the act of opening, not in closing them.

Pintail hybrids.—Mr. Knight had three broods of Pintail × Wild Duck hybrids from the same birds which did so well on his pond last year, some of which by June 16th were three weeks old, but unfortunately several of the young died from the drought, and some which I took charge of were killed by rats; but it proves the facility with which the Pintail and Wild Duck interbreed. Two pair of Mr. Knight's hybrids placed on separate ponds have, however, shown no signs of breeding again.

Black Lark.—On Oct. 30th a Black Lark (*Melanocorypha yeltoniensis*) died after eating a piece of yew, though it had only bitten off a few tips. Subtle as is the poison of the yew, I do not remember to have heard of a cage-bird succumbing to it before, but I have known Partridges killed by it, and Pheasants have been poisoned (see 'Field,' Nov. 25th, Dec. 2nd, 1876). *M. yeltoniensis* has been taken in Belgium about a dozen times, so the appearance of this handsome bird may be expected some day in East Anglia.

LYNCEUS AND THE *LYNCEIDÆ*.

By the Rev. Thomas R. R. Stebbing, M.A., F.R.S., F.L.S., F.Z.S.

In recent years a great impulse has been given to the study of Crustacea by the numerous expeditions sent out more or less expressly for the purpose of deep-sea exploration. As the result of voyages carried out in rapid succession through the last forty years, a host of forms distinguished for novelty, queerness, or beauty have contributed interest and animation to the pursuits of the carcinologist. The species popularly attractive have for the most part, though by no means exclusively, belonged to the Malacostraca. But during the same period in which the higher marine Crustacea have been thus decidedly making their mark, it happens that in a quite opposite direction the fresh-water Entomostraca have found their way to a modest celebrity. Though not many of them are of any considerable size, they attain in various ways to economic importance by their astonishing abundance. Of those that can be easily captured in almost any pond or ditch the variety is very considerable, and the number of species obtainable can be largely increased by a little extra exertion, without any appeal to imperial resources. Apart from ordinary methods of fishing for them at the sides or in the centre of pools and watercourses, that which more than anything else stands in antithesis to the costly labour of dredging and trawling in submarine abysses is the process, applicable at least to many fresh-water Entomostraca, of dredging on dry land. Many sheets of water at certain seasons completely evaporate, and expose a moistureless floor. If earth be taken from this and placed in water, under suitable circumstances of temperature, there is a good prospect that a crop of Entomostraca will be raised from it. The secret is that crustacean eggs have been deposited in the soil, and have there been biding their time till conditions appro-

priate to aquatic creatures should once more revisit their thirsty and solidified home.

Of the three orders—Branchiopoda, Ostracoda, and Copepoda—into which the Entomostraca are commonly divided, the present paper touches only the first, and that in two of its divisions—the "leaf-limbed" Phyllopoda, and Cladocera, with conspicuously "branched antennæ." The former especially excite surprise, when they are successfully grown from dried mud, because of their superior magnitude. Some of them also are remarkable for having no carapace, others for being almost entirely enclosed in what looks like the shell of a bivalved mollusc. The Cladocera are closely related to the Phyllopoda, and are most widely known through the little Water-Flea (*Daphnia pulex*), which, though little, is much larger than the *Chydorus sphæricus*, to be presently mentioned. The labours of G. O. Sars in Norway, of W. Lilljeborg in Sweden, of Jules Richard in France, of G. S. Brady, D. J. Scourfield, and Thomas Scott in Great Britain, and, in truth, of quite a multitude of learned writers all over the world, have discussed almost every conceivable detail in the structure, habits, and distribution of these animals. Even as to their classification, a very near approach to agreement has been arrived at. All the more desirable is it that every source of confusion should, if possible, be eliminated from the names in common use. But in regard to the genus and family which form the subject of this paper, there is something a little parallel to "the strange case of Dr. Jekyll and Mr. Hyde." It is the object of the following discussion to unmask them, in the sense of showing what are the animals to which the designations that form the title of this paper should rightfully be applied.

It is said of mud that, if you throw plenty, some of it is sure to stick. With scientific names there is an understanding that, if they are thrown according to the rules of the game, they ought to stick at least to some of the objects at which they have been thrown. In early attempts at classification a generic name is often attached to an incoherent miscellany of species. When these are subsequently assorted under appropriate headings, the original generic titles do not always quite know where they are. They stand a chance of being left out in the cold, as things no longer wanted—a kind of disinherited vagrants, blissfully for-

gotten, till some meddling bibliographer disturbs the peaceful oblivion in which their claims lie buried.

When Otho Fridrich Müller, in 1785, definitely established the genus *Lynceus*, which he had already brought forward in his 'Prodromus' of 1776, he assigned to it nine species, the first being *L. brachyurus*, the second *L. sphæricus*, a variation from the order adopted in the earlier work. That these nine species have since been distributed among numerous genera is well known; but in this distribution the true position of the genus *Lynceus* has been lost sight of. Since Müller singled out no species as typical of the genus, it was at the outset open to anyone, in dividing the genus, to allot the original name to which species he pleased. No stress whatever can, in my opinion, be laid on the circumstance that Latreille, in his 'Considérations générales,' pp. 91, 421 (1810), mentions '*Monoculus brachyurus*, Fab.," as a typical example of *Lynceus*. He was not discriminating between species and species, and was pretty evidently without the knowledge requisite for doing so. So far as he is concerned all the nine species remain exactly where Müller placed them. There is no hint of an idea that any ought to be transferred to a separate generic division. It is different with Dr. Leach, for he, in 1816, definitely began that partition of the genus which has since been greatly developed. When describing the Crustacea as a division of the Annulosa in the 'Encyclopædia Britannica,' p. 416 (1816), Leach assigns to *Lynceus* the single species *brachyurus*, and to a new genus *Chydorus* the single species *sphæricus*. The inference, then, can scarcely be escaped that, whatever else happens to these two genera, neither can be upheld without at least including in it the species assigned to it by Leach. Desmarest, in 1825, rejects *Chydorus*, upbraiding Leach for having established it merely upon Müller's error in regard to the antennæ. Desmarest himself, whose acquaintance with the subject was not very profound, includes five species under *Lynceus*, but says never a word about *L. brachyurus*. His objection to *Chydorus* has been overruled, and with good reason, since, however weak the distinction drawn by Leach, the application was put beyond doubt by the references which he gives to the species above mentioned. Subsequently Dr. Baird distributed six of Müller's species over the genera *Eurycercus*,

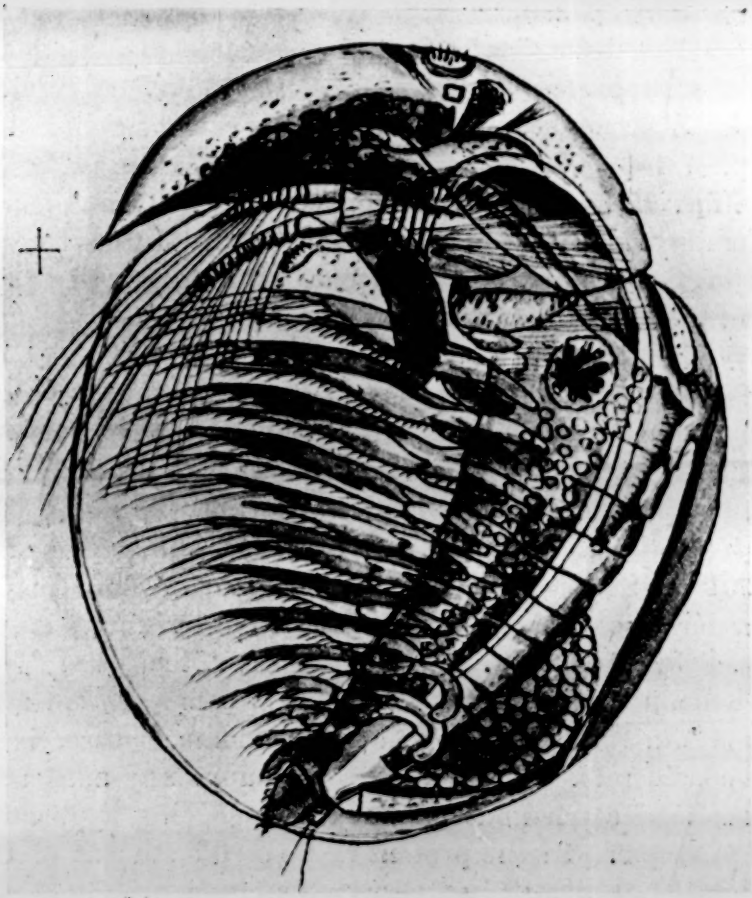
Chydorus, *Camptocercus*, *Alona*, *Pleuroxus*, and *Peracantha*, these, with the genus *Acroperus*, forming his family *Lynceidæ*. Here it is a little startling to observe that the family *Lynceidæ* is set up, but the genus *Lynceus* itself is shut out. Also three of the Müllerian species are not accounted for, namely, *L. brachyurus*, *L. longirostris*, and *L. socors*. Of these Baird refers the second to *Bosmina*, as a genus of the *Daphniidæ*; the third is perhaps unidentified; the first remains over for consideration.

In 1867 Norman and Brady, in their well-known paper on "The Families *Bosminidæ*, *Macrothricidæ*, and *Lynceidæ*," reassemble, under the title *Lynceus*, no less than eleven genera, no one of which, however, includes any of the three species omitted by Baird from the family *Lynceidæ*. The principle on which these two authors acted was that for generic distinction structural characters should be insisted on rather than variations of form. Though they do not make it very clear how the line is to be drawn between form and structure, there was something to be said for their opinion that generic subdivision in the family had been carried beyond the point which was justified by any thoroughness of contemporary knowledge. None the less they recognized the importance of the treatise by G. O. Sars on the 'Cladocera Ctenopoda,' 1865, and they contemplated the possibility that in the future some or all of the rejected names might properly be reinstated. This has come to pass. But authors have still been content to follow Baird in adopting a Cladoceran family *Lynceidæ*, in which no genus *Lynceus* was included, although of other generic names within that family the number has risen to at least eighteen. At length, however, in his 'Cladocera Sueciæ' (1900 or 1901), the veteran zoologist, Wilhelm Lilljeborg, raised a protest against this way of treating O. F. Müller's genus, and restored it in favour of *Lynceus quadrangularis*, Müller, which Baird had transferred in 1843 to a new genus *Alona*. But, as already explained, the action of Leach has affixed the title *Lynceus* to the species *L. brachyurus*. Accordingly, in any settlement of claims it is to that species that attention must first be given. It has nothing to do with *Alona*, for it is not one of the Cladocera at all. It is a phyllopod, and, as may be seen from the 'Fauna Norvegiæ' of G. O. Sars (vol. i. p. 116, 1896), in which it is fully described

and beautifully figured, it belongs to the genus which Lovén called *Limnetis*, and Lièvin called *Hedessa*. Both those names, therefore, are superseded by Müller's *Lynceus*, as limited by Leach. As a further consequence the family *Limnetidæ* must yield its name to *Lynceidæ*, which takes rank as a phyllopod family; while in the Cladocera the name *Lynceidæ* must be discarded in favour of a family *Chydoridæ*, *Chydorus* having been detached earlier than any other Cladoceran genus from that fruitful mother of genera, Müller's *Lynceus*.

Since there is reason to expect that the changes of nomenclature above introduced will not be greeted with any rapturous enthusiasm by all zoologists, it may be good policy to ward off the "precious balms" of rebuke by evidence that the changes are not unsupported by precedent. In 1865 Sars established a family *Lyncodaphnidæ*, which Lilljeborg still upholds. But already, in 1867, Norman and Brady had substituted for it the name *Macrothricidæ*, with the explanation: "Sars' name for this Family 'Lyncodaphnidæ,' not being derived from the typical genus of the Family, in accordance with the usually received rules of nomenclature, we have substituted for it that here employed." It may of course be urged that this was only a youthful delinquency on the part of two authors whose acknowledged eminence is of later date. But such an argument will fall very flat in face of the circumstance that G. O. Sars himself, with the openmindness habitual to him, has now accepted the name *Macrothricidæ*, using it prominently in his papers of 1900 and 1901 on South American Entomostraca. Some may even now prefer the scholarly emendation *Macrotrichidæ*, long ago proposed by Dr. E. v. Martens in the 'Zoological Record.' The common outcry, that there is no "compensation for disturbance" in these rearrangements of nomenclature, is itself very inconsiderate. There can never be any fixity until a settlement has been carried out on the thoroughgoing application of sound principle. In the present instance the student of Cladocera should feel himself in a very happy position. By obedience to law he is involved in nothing worse than the sacrifice of the name *Lynceidæ* in favour of *Chydoridæ*. If he persists in wrongfully retaining *Lynceus* as a Cladoceran genus, he must sacrifice for it *Alona*, Baird, instituted in 1843, which has not

only been current for nearly sixty years, but has suggested the names of the nearly related genera, *Alonella*, *Alonopsis*, *Euryalona*, *Pseudalona*, and the specific name of *Camptocercus aloniceps*, all to be made cryptic by the burial of their parent. Seeing that the species of *Alona* itself are numerous, convenience and principle are not in conflict over its validity. They are alike interested in upholding it.



Lynceus brachyurus, O. F. Müller. Left valve removed. After Sars.

THE BIRDS OF BARDSEY ISLAND, WITH ADDITIONAL NOTES ON THE BIRDS OF LLEYN.

By O. V. Aplin, F.L.S.

(Concluded from p. 17.)

I have added the following to my list of the birds of Lleyn :—

Dipper.—One in the river at Afon Wen, May 29th, 1901.

Coal-Tit.—Llanbedrogg, May 27th, 1901.

Turtle-Dove.—Bardsey.

Redshank.—A pair flew over my head when I was at the Afon Wen meres; they were going to another part of the meres, which cover a good deal of ground, and they may possibly breed there.

Coot.—I counted forty-one old birds on one of the large reedy meres at Afon Wen on May 29th. Messrs. T. A. Coward and Charles Oldham, who were in Lleyn for a few days after I had left, found three or four pairs of Coots at Llyn Glâs fryn, near Pwllheli.

Little Grebe.—To judge from the chattering cries which came from the reeds, this bird is common at the Afon Wen meres. I saw one adult on the open water. These meres presented quite a pleasing scene of bird-life; besides the Coots and Dabchicks, there were numerous Wild Ducks with young broods, Moor-hens, and a pair of Swans. A sandy spit running out into the water was occupied by a pair of Oystercatchers, a Ringed Plover, and a Common Sandpiper; while pair of Redshanks and a calling Whimbrel flew low overhead. Numerous members of the Swallow tribe skimmed over the water, and Sedge-Warblers rattled away in the reeds. A prolonged search might reveal Water-Rails, and perhaps other species. Messrs. Coward and Oldham saw one pair of Dabchicks with young, and at least one other bird at Llyn Glâs fryn.

Goldcrest.—Messrs. Coward and Oldham heard one singing in a small wood at Boduan.

Gannet.—In my former papers I omitted to include the Gannet. Mr. Coward saw an adult bird off Llanbedrogg Head on June 9th, 1887, and others off Nevin. I have several times seen adult Gannets on the other side of Tremadoc Bay in May; they doubtless come from Grassholme to feed.

Great Northern Diver.—Mr. Coward found the dried remains of one in winter dress in Abersoch Harbour. I have no doubt that Divers are not uncommonly to be seen off this coast. I once saw two Great Northern Divers off Barmouth in May, and at that season the Red-throated Diver is not at all uncommon there. One morning I saw as many as nine feeding in the shallows.

I add some notes on Lleyn birds already recorded :—

Peregrine Falcon.—I ascertained the position of the eyrie of another pair which breed annually in Western Lleyn. Mr. Coward saw last year the birds at a previously-recorded eyrie.

Merlin.—Seen by Messrs. Coward and Oldham last year in May at Cilan.

Red-backed Shrike.—On May 23rd, 1901, I found a pair, with a nest and two eggs, in a bramble-bush on the cliffs about half a mile west of Aberdaron ; an interesting extension of its known range in this direction ; almost in sight of Ireland, where this Shrike is practically unknown.

Mistle-Thrush and House-Martin. — We all three agreed that these birds were more common last year than we had previously known them ; the former seems fairly common.

Grasshopper-Warbler.—We heard in the marsh at Abersoch.

Goldfinch.—I noticed at Llanbedrogg, and Messrs. Coward and Oldham at Abersoch and Boduan.

Chough.—Messrs. Coward and Oldham observed it at an inaccessible spot on the north coast.

Whimbrel.—Evidently not uncommon on the spring migration. I saw two alight on St. Tudwal's Island, and several others passing over the district.

Purple Sandpiper.—Reported by the lighthouse-keeper as present on St. Tudwal's Island again this May—about the 24th.

Lesser Tern.—I saw a pair in Hell's Mouth Bay, and another at Abersoch ; and Mr. Oldham reported a score in Pwllheli Harbour on June 2nd.

Tern (Common or Arctic).—One or two seen in Pwllheli Harbour on May 29th by Messrs. Coward and Oldham.

Heron.—I am told that there is a heronry near Pwllheli. Herons are generally to be seen in Abersoch Marsh ; on May 26th two rose from the marsh, one of which held in its bill a wriggling eel about a foot and a half long.

Shag.—More breed on the islands (where they are quite safe) than

I thought. I saw several on their nests in the cave; others I saw on their nests at Pen y Cîl.

Great Black-backed Gull.—A pair has been known to breed on Careg ddu, and another on the mainland at the far end. One can never be certain of finding a particular nesting spot occupied in any particular year.

Guillemot.—I visited, in a boat, a small colony in Ogof urel (? uriel), at Pen y Cîl, on May 24th. The birds on the ledges were all facing the sea, and probably had not laid their eggs. A local name used here and on Bardsey is "Aron" or "Arron." It is probably onomatopœtic. I have never previously met with this curious name in use, although I believe I have seen it in print somewhere. However, I have searched in a great many books, old and new, without finding it.

Mr. Coward, to whom I am again indebted for the valuable notes he made, has given me particulars of the great breeding station of sea-birds on the Bird Rock near Nevin, which I have not yet visited. It is three or four hundred feet high. Near the top are Cormorants and a few Herring-Gulls; lower down, Guillemots and Razorbills in thousands, and below them again great numbers of Kittiwakes. Jackdaws, Carrion-Crows, and Rock-Pipits were among the other birds noticed. No Lesser Black-backed Gulls were seen, but a pair of *Larus marinus* haunted a small stack, which, however, held neither eggs nor young. As far as I am aware, the Lesser Black-backed Gull is rare in Lleyn, and I know of no instance of its breeding in the district. Mr. Coward saw one between Pwllheli and Llanbedrogg on June 3rd, 1887, and two on Llanbedrogg Head four days later. Herring-Gulls used to breed on the headland there, but the part of the cliff they bred on has since been quarried away. I have only very occasionally seen the Lesser Black-backed Gull in Lleyn in May and June.

The Lesser Whitethroat and Ray's Wagtail must be struck off the Lleyn list for the present. The inclusion of the former rests on the identification of a single egg found in a nest near Abersoch. Mr. Coward submitted the egg at the time to a high authority, who confirmed his identification of it. He has recently been kind enough to show the egg to me, and I believe it is only an abnormal egg of the Common Whitethroat. Neither Mr.

Coward nor I have ever been able to see or hear the bird in Lleyn. I have also Mr. Coward's authority for saying that the record of Ray's Wagtail is doubtful. He has again referred to his notes, and he finds that he only included the bare name of this species in his list of birds seen at Abersoch in 1887, with no particulars; and that with regard to the Nevin bird in 1895, there is a note of interrogation against the name. In the light of our later investigations, we have therefore decided to strike the name out of the list.

Pennant, in his 'Tours in Wales,' mentions that the Rev. Hugh Davis, of Beaumorris, was witness to "a very uncommon wreck of sea-fowl" in 1776. He saw the beach near Criccieth for miles together covered with dead birds, especially those kinds which annually visit the rocks in summer, such as Puffins, Razorbills, Guillemots, and Kittiwakes; of the last there were many thousands. Other birds mentioned were Tarrocks [the Kittiwake in immature dress], Gannets, Wild Geese, Barnacles, Brent Geese, Scoters, and Tufted Ducks. The frost from Jan. 6th until Feb. 2nd in that winter had been very severe. In October, 1884, I saw thousands of Scoters off the Merioneth coast.

I do not think that Lleyn, as an ornithological district, should be considered to extend further east than about the mouth of the Afon Dwyfawr on the south, and perhaps the headland called Trwyn y Tâl on the north coast. Further east the country becomes more luxuriant and wooded on the south towards Criccieth, and more mountainous on the north. And at Tremadoc I have met with birds, such as the Blackcap and Pied Flycatcher, which belong to the avifauna of Eastern Carnarvon and Merioneth, but not to that of Lleyn, so far as I know. I have often wondered that the Sheld-drake does not breed among the sand-hills between Llanbedrogg Head and Penrhyn Du, but I have never seen it there. It may, however, turn up between Criccieth and Pwllheli. At and near Portmadoc I have seen pairs in the middle of May.

NOTES AND QUERIES.

MAMMALIA.

The Food of the Water-Vole.—I am convinced as to the carnivorous habit of the Water-Vole (*Arvicola amphibius*), having on two or three occasions seen the animal industriously engaged in the occupation. I like the little fellow, and have found him right merry company when loafing at eventide in the solitary places of our rivers and broadlands. He is amusing by his frolicsomeness when he seems assured there are no onlookers, and I should not like a hair of his coat harmed by what I may say of him, for such animal food as he may discuss is comparatively worthless. In the August of 1896 I threw a couple of dead Roach on a "rond" in Kendall Dyke, near Hickling Broad, at the rear of my houseboat. Next morning but a few bones and scales remained. Suspecting the Voles, I pegged down another Roach or two, and the Water-Voles—for such they were—came again and had their supper. The late Sir E. Newton had suggested to me some time previously that the number of broken fresh-water Mussel-shells (*Anodonta cygnea*), at Lound, were the work of Voles. On Sept. 12th, 1896, I examined a number of broken shells at Lound, amongst which lay the excrement of the animals in question. One particular valve was always broken, probably being the easier of manipulation. I actually observed a Vole (I was quietly fishing at the moment opposite him) come out of the water, and drag a Swan Mussel up the bank, which he had secured intact. I received a communication shortly after from West Norfolk, pointing out to me the partiality of *Arvicola* to the Crayfish. Above all, however, I think the Water-Vole delights to feed upon the stems of the succulent grasses growing in shallow ditches, and will remain in the centre of a clump, selecting the finest, which, sitting at ease upon his haunches, he nibbles, holding them between his fore paws with all the adroitness of the Squirrel.—A. Patterson (Ibis House, Great Yarmouth).

AVES.

Late Redstart and Tree-Pipit, &c.—On Nov. 16th, 1901, whilst walking between Bexhill and St. Leonards, I saw a female Common Redstart (*Ruticilla phœnicurus*) on a fence by the South Coast Railway.

I watched it for several minutes. This is unusually late for this species here. Also, on Nov. 8th, I saw a Tree-Pipit (*Anthus trivialis*) near Fairlight, Hastings. Numbers of Ring-Ouzels (*Turdus torquatus*) arrived here during the latter part of September and October, the last I saw being on Oct. 30th.—Michael J. Nicoll (10, Charles Road, St. Leonards).

Differences between immature Blue-headed and Yellow Wagtails. In reference to Mr. Arnold's note on the above subject (*ante*, p. 24), I do not think that there is any way to tell with certainty the young of *M. flava* from *M. raii*. In really typical examples of the former the throat is almost pure white, whilst that part of the latter is buff or buffish yellow; but there are always intermediate specimens having the throat whitish buff, so that it is very difficult to distinguish *M. flava* from *M. raii*. To my mind, the colour of the head and back have nothing to do with it during the first autumn. The eye-stripe varies as much as the throat. — Michael J. Nicoll (10, Charles Road, St. Leonards).

Little Owl and Shore-Lark in Lincolnshire.—I have just seen a specimen of the Little Owl (*Athene noctua*), which is in the hands of Mr. Nash, a birdstuffer in this city. Mr. Nash informs me that the bird (a female) was shot at Coleby, a village a few miles from Lincoln, about Jan. 10th of the present year. As I have noticed one or two records of the occurrence of this species recently in England, it is possible there may have been a small arrival of immigrants; but I think it more likely that the example in question had either escaped from confinement, or had intentionally been liberated. On Jan. 9th last I saw three Shore-Larks (*Otocorys alpestris*) on the coast at Saltfleet. The birds were remarkably tame, and allowed me to approach within a few yards of them.—F. L. Blathwayt (Lincoln).

Gadwall in Merionethshire.—The Gadwall (*Anas strepera*) is such a rare bird in North Wales that the following instances of its occurrence seem worth placing on record. On Dec. 14th last a female Gadwall was shot at flight-time by A. Ephraim, the Ynysfor huntsman, on the marsh there, and was shown to me in the flesh. My friend Mr. E. B. Jones, of Ynysfor, informs me that he himself shot a fine male near the same place on Dec. 30th, 1890, during the severe frost then prevailing.—G. H. Caton Haigh.

Notes from Shetland.—Great Northern Diver (*Colymbus glacialis*). A few have been seen at intervals. One was recently shot in Yell; its stomach was said to contain 147 fish!

Coot (*Fulica atra*).—One seen on Nov. 2nd, and one on Dec. 24th last; both on Cliff Loch. A third was caught on Whalsey Island on Dec. 3rd.

Long-eared Owl (*Asio otus*).—I have only seen one this winter; it was a male, brought to me alive from Burrafirth on Nov. 3rd. I set it at liberty.

Red-breasted Merganser (*Mergus serrator*).—A good many have been seen round the coast.

Scaup-Duck (*Fuligula marila*).—Two were shot on the west side of this island on Nov. 18th.

Wigeon (*Mareca penelope*).—Have been fairly plentiful.

Woodcock (*Scolopax rusticula*).—Three seen—two on Dec. 18th, 1901—at Haroldswick, and one on Jan. 8th at Burrafirth.

Snowy Owl (*Nyctea scandiaca*).—One reported from Yell on Jan. 24th. This bird is becoming exceedingly rare. During all my wandering during the past four years I have only been fortunate enough to come across one, and have heard of no others, nor have any traces been seen.

Iceland Gull (*Larus leucopterus*).—Two were seen on Jan. 27th at Baltasound.

Waxwing (*Ampelis garrulus*).—A specimen—a female in fair condition—was shown to me by a young lad, Robert Moust; he caught the bird alive at Baltasound on Dec. 25th, and tried ineffectually to keep it alive.

Red-necked Grebe (*Podicipes griseigena*).—One was shot at Baltasound on Dec. 30th.

The experiment has again been tried of introducing Grouse into Shetland, some six hundred birds having been let loose on the Mainland last September. They have not yet strayed so far north as this island, and I question very much if they will increase to any extent; want of cover, damp, Ravens, and human enemies will not give them much chance.—T. Edmondston Saxby (Baltasound, Shetland).

REPTILIA.

Sand-Lizards at St. Leonards-on-Sea.—In the spring and early summer of 1892 I captured several Lizards of both species, i.e. *Lacerta vivipara* and *L. agilis*, on some brickfields close to West St. Leonards Railway Station, and kept them alive for some weeks, though I did not know until the summer of 1901 that there was any interest attached to the Sand-Lizard in this district. I am perfectly convinced of their identity by their much larger size and green sides, and, on looking at

some specimens of both species at the Natural History Museum, South Kensington, I at once recognized the Sand-Lizard as similar to the ones I obtained.—Michael J. Nicoll (10, Charles Road, St. Leonards).

PISCES.

The Saw-fish (Pristis antiquorum) in British Waters. — In the notice of my "Notes and Letters of Sir Thomas Browne" (*ante*, p. 79), the writer, after quoting the statement by Browne that a "sword fish or Xiphias or Gladius" was taken "intangled in the Herring netts at yarmouth," adds on my authority that this "appears to be the only authentic record of this southern species in British waters," which is far from being the case. The note in which the above statement occurs does not refer to this species, but to the Saw-fish (*Pristis antiquorum*), respecting which Browne writes:—"A pristes or serra saw-fish taken about Lynne comonly mistaken for a sword-fish and answers the figure in Rondeletius" ('Notes,' p. 36); then follows the account of the Sword-fish in a separate paragraph. In my footnote to *Pristis antiquorum* I say that, "so far as I am aware, Browne's is the only record of the occurrence of this southern species in British waters, with the exception of a note in Fleming's 'British Animals' (p. 164), where it is stated, on the authority of the late Dr. Walker's MS. 'Adversaria' for 1769, that *Pristis antiquorum* "is found sometimes in Loch Long"; but Fleming adds that he has "met with no other proof of its ever having visited the British shores." Any further information with regard to this species as a British fish would be gladly received.—Thomas Southwell (Norwich).

[Mr. Southwell is quite justified in his correction, "Sword-fish" having accidentally been substituted for "Saw-fish" in the notice referred to. However, although the Sword-fish is undoubtedly sometimes taken in British waters, it still seems doubtful whether Browne's record of the Saw-fish will be generally accepted. Mr. Boulenger—with whom I recently discussed the question—certainly did not believe the fish had ever reached our shores.—Ed.]

NOTICES OF NEW BOOKS.

The Home Life of Wild Birds: a New Method of the Study and Photography of Birds. By FRANCIS HOBART HERRICK. G. P. Putnam's Sons, The Knickerbocker Press.

THIS book is another evidence of the advance made in ornithological bionomics by the aid of Photography. It also inculcates a new method of "control," not by making a captive of the bird or nest, but by the displacement of the latter from its original position to one that affords a better field for observation. "If the nest like that of an Oriole is fastened to the leafy branch of a tree, the nesting bough is cut off, and the whole is then carefully lowered to the ground and set up in a good light, so that the branch with the nest shall occupy the same relative positions which they did before. The nest, however, is now but four instead of forty or more feet from the ground." Other nests are treated on the same principle and brought within the vicinity of a green tent, "which effectually conceals the student, together with his camera and entire outfit." In fact, when the arrangements are successfully completed, the author and his camera are frequently not beyond an actual distance of about two feet from the nest. This transaction has produced a number of charming illustrations, and, what is more, these have portrayed many novel attitudes in bird life. The young Belted Kingfishers and their habit of walking backwards is a case in point, and for the probable origin of that procedure we must refer to the book itself. In the chapter on "The Force of Habit" are several singular records. In watching hour by hour the American Robins visiting their young, Mr. Herrick found that the male *invariably* came to the right side of the nest, while the female did not pursue that strange predilection. In "Taming Wild Birds without a Cage" the author has described many traits known to all of us who can, now and then, practise that difficult human feat of "keeping quiet." The rest in the woods when tired out has

often shown us more than all our efforts and fatigues in search of bionomical observation, and this fact has been clearly recognized and made use of by our author. Why is it that in zoology the best and most patient observations are often made by ornithologists?

Atlas of Practical Elementary Zootomy: being a Revised Edition of the Zoological Portion of the Atlas of Practical Elementary Biology. By G. B. Howes, LL.D., F.R.S. Macmillan & Co.

Most of us will call to mind the laconic answer given by Huxley to a controversialist of biological aspirations, "Take a cockroach and dissect it," and if we only studied animals by themselves first, and read the books afterwards, there can be little doubt of the vast advantage to our biological knowledge. To-day we too often only see what the books tell us to observe, while the books themselves are not unfrequently built up on other writings. Prof. Howes leaves no doubt as to his meaning. "Lecturing, which is mere recapitulation, in advance of facts to be later learnt by work in the laboratory, is useless, if not mischievous." This book is a guide to the Huxleyean "Type System," and the late Prof. Huxley, writing a preface to its first edition in 1885, observed: "No doubt the direct instruction of a teacher is very valuable; but with the aid of this Atlas, I think that an intelligent student, who is unable to obtain that advantage, will find no difficulty in working through 'The Course of Practical Instruction in Elementary Biology' by himself."

Twenty-four plates are given, detailing the anatomy and physiological organs of Frog, Crayfish, Earthworm, Snail, Fresh-water Mussel, Fresh-water Polyp, and some Unicellular organisms. The student who, with these easily acquired animals, these plates, a very moderate dissecting apparatus, and a pair of fairly intelligent eyes, does not find a key to the mysteries of animal life must have mistaken his vocation.

Bird Hunting on the White Nile. By Harry F. Witherby. The Office of 'Knowledge.'

Mr. Witherby has great opportunities, and, as an ornithologist, he certainly tries to make the best of them. He has

visited the Bustards on the plains near the Guadalquiver, tried Russian Lapland, has just started on a Persian expedition, and in this small volume gives the principal incidents of a journey made "to add to our knowledge of the birds and beasts of the Soudan."

These pages have the merit of giving a very fair impression of the neighbourhood of the ancient river, with its modern railway, its sandy plains, its few trees, and apparently its limited bird fauna. To have reached this hunting-ground would have a few years ago been considered the work of a "traveller"; it will soon be only the starting-point for a journey to British possessions farther south, where the solitude of the green veld will be exchanged for the silence of the sandy desert. The author's greatest success appears to have been the acquisition of a rare and beautiful Goatsucker (*Caprimulgus eximius*), of which we read that up to that time only four specimens were known, but of which since that date the Rothschild and Wollaston party have discovered a spot where it is fairly common, and procured no fewer than some fifteen examples. A list of the birds collected and observed is appended, and also one of the mammals contributed by Mr. de Winton.

The Vertebrate Fauna of Bedfordshire: Birds. By J. Steele-Elliott. Printed for private circulation.

In our volume for 1897 (p. 486) we drew attention to the commencement of this excellent publication, as much a contribution of good work as of private enterprise in the cause of ornithology. We have now received the conclusion of the "Birds," with an intimation from the author that he does not intend publishing the memoirs of the other vertebrates, as he is doing that work for the Victorian History of the County. We hope, however, that in a few years Mr. Steele-Elliott will return to his self-imposed task, and give us the complete description of the fauna which he has so well begun. At all events, his present instalment affords a history of the birds of Bedfordshire.

EDITORIAL GLEANINGS.

At the meeting of the Zoological Society, on the 4th inst., Dr. H. Lyster Jameson, M.A., read a paper "On the Origin of Pearls." The author's observations referred especially to *Mytilus edulis*, the Common Mussel. The pearls were found to be due to the presence of parasitic Distomid larvæ, which entered the subcutaneous tissues of the Mussel, and became surrounded with an epidermal sack similar in its characters to the outer shell-secreting epithelium of the mantle. If the *Distoma* died in the sack it became calcified, and formed the nucleus of a pearl, the pearl arising, like the shell itself, from the calcification of the cuticle of the epithelial cells. The parasite sometimes migrated out of the sack, in which case the nucleus of the pearl was inconspicuous. Dr. Jameson had investigated the life-history of this parasite, and found that it arose as a tail-less Cercarian larva, in sporocysts, in *Tapes decussatus* and *Cardium edule*. He had succeeded in infecting Mussels from *Tapes* in an aquarium. The adult stage of this parasite was apparently *Distoma somatinæ*, Levinsen, which occurs in the intestine of the Eider-Duck, and which the author had found in the Scoter or Black Duck (*Œdemia nigra*). The complicated life-history of the parasite, and the absence of organs of locomotion in the *Cercaria*-stage, sufficed to account for the anomalous and hitherto inexplicable distribution of pearl-bearing Mussels. Dr. Jameson had found that pearls were caused by similar parasites in several other species of Mollusca, including some of the Pearl-Oysters; and he believed that the artificial infection of the Pearl-Oysters could be effected in a similar manner to that which he had found successful in the case of the Common Mussel. When this was achieved the problem of artificially producing pearls would be solved.

Slowly but steadily the great collection of British Birds by Mr. F. Coburn, the well-known taxidermist, of Birmingham, is being built up. More than ten years have elapsed since the work was first entrusted to him by Mr. Baylis, of Birmingham, and it may be fifteen or even twenty years before the great task is completed. The statement suggests *dilettante* efforts, but, as a matter of fact, hard constant

work has been given to the undertaking, and an enormous amount still remains to be done. The root idea is to prepare a collection of every species of British bird. This in itself does not appear a very formidable task, since there are only about 415 different kinds. But it is stipulated also that each bird should be presented at every stage of its existence, from the egg to the adult male and female, and, moreover, should be placed in a scene resembling its natural habitat. This means, of course, that the number of different birds which have to be collected and stuffed amounts not to hundreds but to thousands, and with no two alike. Take, for example, the Yellowhammer. In the first place, Mr. Coburn found a Yellowhammer's nest in a wild rose tree. Then, with incredible patience, he set to work, and patiently reproduced that scene in a case about five feet by three feet, with a depth of two feet six inches. The branches, twigs, and leaves of the tree were all faithfully imitated, and, as twenty-three gross of leaves were required, and each had to go through eleven distinct processes, the task was almost comparable with that of Sisyphus. But when that was finished, the real work had only begun. Just as the would-be cook is instructed first to catch his hare, so Mr. Coburn had to provide himself with Yellowhammers in every stage of development. Moreover, the adults vary considerably, so representatives of different types were included. Altogether, fifty specimens were necessary. Then each bird had to be stuffed—and in a collection on the lines indicated this is a matter requiring the most exact knowledge, as well as careful workmanship. Finally came the arrangement of the birds in the case. One nest containing eggs was fixed in the bush. As Yellowhammers build also on the ground, another nest was placed there, containing young. A bird just out of the nest, with its beak open to receive food from a parent close by, was the next object of attention. Then on the twigs of the bush were displayed the remaining birds in their different stages, and also the adults in characteristic attitudes. When, ultimately, the case was completed, Mr. Coburn had the satisfaction of knowing that he had disposed of one species.

At the present time forty species have been completed, and material has been collected for more than 250 of the remainder. For some birds—such as the Great Northern Diver—three separate cases are needed, and for the Heron there are two cases, each five feet wide and four feet six inches high. Of course, when the collection is completed it will be absolutely unique. It is declared that it will take absolutely the first place in the British ornithological world, easily surpassing the most famous collections of to-day. Certainly a very large hall—comparable in size with the Birmingham Town Hall—will be

required in which to display the cases, and from the museum thus formed the life-history of every British bird can be deduced more readily than from acres of printed matter. At present large photographs of the cases are being taken, and probably, when about one hundred are available, they will be published in book form. In view of the magnitude of the task before him, Mr. Coburn sometimes speaks despairingly of the prospect of completing it. But it is to be hoped that more rapid progress will become possible in the future.—*Birmingham Daily Mail.*

Alas! poor Heron. We extract the following paragraph from a weekly contemporary:—"The Heron does not seem to be a popular bird with proprietors of Trout streams. One gentleman has the following recipe for getting rid of the luckless feathered fisherman: 'Bait a night-line with a Trout threaded from head to tail with a long needle, leaving the points of the hooks outside the corners of the Trout's mouth. Attach the bait to a night-line, pegged down securely, and put the lure into the water on the shallow where the Heron comes to feed. If the line is properly leaded to keep the bait in position, you will have your Heron to a dead certainty, and can lead him home like a dog on a chain next morning.'" We commend this information to the Society whom it most concerns.

BRITISH MUSEUM 22 AP 1902